

CH.5, L6 – SOLVING REAL-WORLD SYSTEMS OF EQUATIONS WITH ELIMINATION

Objective: Given a real-world situation, SWBAT write and solve a system of equations with elimination

Think About It: Mark places 2 small boxes and 5 medium boxes on a scale to weigh them. The combined weight is 60 pounds. Mark then removes all the boxes and places 2 small boxes and 1 medium box on the scale and records the weight as 20 pounds. Write a system of equations that could be used to determine the weight of the boxes and explain why a system can be used to model this problem. Solve the system with any remaining time you have.

Define variables:

System of equations:

This problem can be modeled with a system of equations because _____

Keyword(s): *equations, elimination*

Big Idea:

CFS:

1. Situations are annotated for key information
2. System of equations is written and variables are defined
3. System is solved with elimination
4. Solution is checked

Interaction with New Material:

Ex. 1) Rachel is waiting for her friends at the movie theater. Why she is waiting, she watches two groups buy tickets and popcorn. The first group buys 5 tickets and 2 popcorns and their total is \$47.50. The second group buys 4 tickets and 1 popcorn and their total is \$35. When Rachel's friends show up, they buy 3 tickets and 2 popcorns. How much did it cost them?

Define variables:

System of equations:

Find Cost of ___ tickets and ___ popcorn:

Check:

It will cost Rachel and her friends _____

CFS:

1. Situations are annotated for key information
2. System of equations is written and variables are defined
3. System is solved with elimination
4. Solution is checked

Partner Practice:

1. Julia went to the movies and bought one jumbo popcorn and two chocolate chip cookies for \$5.00. Marvin went to the same movie and bought one jumbo popcorn and four chocolate chip cookies for \$6.00. How much does each item cost?

Define variables:

System of equations:

Check:

The jumbo popcorn cost _____ and the chocolate chip cookies cost _____.

CFS:

1. Situations are annotated for key information
2. System of equations is written and variables are defined
3. System is solved with elimination
4. Solution is checked

2. Amistad starts selling tickets to basketball games. They sell 292 tickets to the last game of the season. An adult ticket costs \$3. A student ticket costs \$1. They collect \$470 in ticket sales. Write and solve a system of equations to find the number of each ticket sold.

Define variables:

System of equations:

Check:

Amistad sold _____ adult tickets and _____ student tickets

3. The sum of two numbers is 51 and the difference between the two numbers is 31. What is twice the product of the two numbers?

Define variables:

System of equations:

Check:

CFS:

1. Situations are annotated for key information
2. System of equations is written and variables are defined
3. System is solved with elimination
4. Solution is checked

4. The 9th grade class decides to have a fundraiser to help fund a better end of year trip. They sell gift wrap for \$4 per package and greeting cards for \$10 per package. The class sells 205 packages in all and receives a total of \$1084. Find the number of packages of gift wrap and number of packages of greeting cards sold.

Define variables:

System of equations:

Check:

5. Each family in a neighborhood is contributing \$20 worth of food to the neighborhood picnic. The Harlin family is bringing 12 packages of hamburger and hotdog rolls. The hamburger rolls cost \$2 per package. The hotdog rolls cost \$1.50 per package. How many packages of each type did they buy?

Define variables:

System of equations:

Check:

CFS:

1. Situations are annotated for key information
2. System of equations is written and variables are defined
3. System is solved with elimination
4. Solution is checked

6. John's school is selling tickets to a spring musical. On the first day of ticket sales, the school sold 8 adult tickets and 5 child tickets for a total of \$104. The school took in \$80 on the second day by selling 4 adult tickets and 6 child tickets. On the third day, they sold 10 adult tickets and 4 child tickets. On the last day, they sold 22 adult tickets and 8 child tickets. How much more money did they make on the last day compared to the third day?

Define variables:

System of equations:

Check:

CFS:

1. Situations are annotated for key information
2. System of equations is written and variables are defined
3. System is solved with elimination
4. Solution is checked